

CLAIMS

1.(Original) A method for manufacturing a Thin Film

Inorganic Light Emitting Diode device, said method comprising the following steps, in order,:

(1) preparing a nanoparticle dispersion of ZnS doped with a luminescent centre by precipitation from appropriate aqueous solutions comprising zinc ions, sulfide ions and dopant ions,

(2) washing said dispersion of doped ZnS to remove non-precipitated ions,

(3) coating onto a first conductive electrode said washed dispersion of doped ZnS, optionally after admixture with a binder,

(4) applying on top of said coated layer resulting from step (3) a second conductive electrode, with the proviso that at least one of said first and second electrode is transparent.

2.(Original) A method according to claim 1 wherein said precipitation of step (1) is performed according to the double jet principle whereby a first solution containing zinc ions and a second solution containing sulfide ions are added together to a third solution.

3. (Original) A method according to claim 2 wherein said first solution also contains said dopant ions.
4. (Original) A method according to claim 1 wherein said dopant ions are Cu^{2+} ions.
5. (Original) A method according to claim 1 wherein said dopant ions are Cu^+ ions.
6. (Original) A method according to claim 1 wherein said dopant ions are Mn^{2+} ions.
7. (Previously Amended) Method according to claim 1 wherein said washing of said dispersion of doped ZnS is performed by an ultrafiltration step, ultrafiltration step and a diafiltration step, or a diafiltration step.
8. (Previously Amended) Method according to claim 7 wherein said ultrafiltration step, ultrafiltration step and a diafiltration step, or a diafiltration step is (are) performed in the presence of a compound preventing agglomeration of nanoparticles.
9. (Original) A method according to claim 8 wherein said compound preventing the agglomeration of nanoparticles is a polyphosphate or polyphosphoric acid.
10. (Original) A method according to claim 1 wherein said first electrode is an Indium Tin Oxide (ITO) electrode.

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11. (Original) A method according to claim 1 wherein said first electrode is a foil comprising a polythiophene/polyanion complex.
 12. (Original) A method according to claim 11 wherein said polythiophene/polyanion complex is a poly(3,4-ethylenedioxythiophene)/polystyrene sulphonate complex.
 13. (Original) A method according to claim 1 wherein said second conductive electrode is an aluminum electrode applied by vacuum deposition.
 14. (Previously Amended) A Thin Film Inorganic Light Emitting Diode device manufactured according to a method for manufacturing a Thin Film Inorganic Light Emitting Diode device, said method comprising the following steps, in order:
 - (1) preparing a nanoparticle dispersion of ZnS doped with a luminescent center by precipitation from appropriate aqueous solutions comprising zinc ions, sulfide ions and dopant ions,
 - (2) washing said dispersion of doped ZnS to remove non-precipitated ions,
 - (3) coating onto a first conductive electrode said washed dispersion of doped ZnS, optionally after admixture with a binder, and

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(4) applying on top of said coated layer resulting from step (3) a second conductive electrode, with the proviso that at least one of said first and second electrodes is transparent.
